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creased by constant warfare. The squirrel is never safe from the lynx, the caribou from the wolf, the rabbit from the fox."

As to conservation both sea and land game are steadily diminishing. The forests are fire-devastated, and immense waste continues in many directions. Indians and Eskimos are decreasing, and yearly bands escape starvation only through charity. Dr. Grenfell recognizes that the aboriginal inhabitants and the lower order of animals must go to the wall. He is however optimistic as to the development of Labrador; with the exploitation of the pulp forest for the whites, and by the reindeer herds for the natives.

The index completely ignores the new matter, an unfortunate oversight of the publishers.

A. W. GREELY

BOTANICAL NOTES

THE FOURTH INTERNATIONAL BOTANICAL CONGRESS

ATTENTION of botanists is called to the "first circular" in regard to the next International Botanical Congress, recently issued by the Organizing Committee.

Dear Sir and Colleague,

The International Botanical Congress, held at Brussels in May, 1910, decided, on the invitation of the Royal Society of London, that the next meeting of the congress, in 1915, should be held in London.

At a representative meeting of British botanists, held in London on May 10, 1911, a provisional bureau was nominated, consisting of three presidents (Professor F. O. Bower, Sir David Prain and Professor A. C. Seward) and a general secretary (Dr. A. B. Rendle). The bureau was empowered to cooperate with the permanent bureau of the Brussels Congress and to arrange for the appointment, in consultation with the British botanists, of an organizing committee. This organizing committee was elected at a general meeting of British botanists held in London on March 11, 1912; and at a second meeting held on May 17, an executive committee was appointed. A number of distinguished patrons of botany were also invited to lend their support to the congress.

The following general regulations for the conduct of the congress have been approved by the executive committee:

1. The Fourth International Botanical Congress shall be held in London from Saturday, May 22, to Saturday, May 29.

2. Membership of the congress shall be conditional upon subscribing to its regulations and the payment of a subscription of fifteen shillings. Members will receive all the publications of the congress. Ladies accompanying members may attend the meetings and excursions of the congress on payment of ten shillings each.

3. The work of the congress shall include the different branches of botanical science; and the congress will also carry on the work on (1) nomenclature, and (2) bibliography and documentation, left over from the previous meeting.

The permanent bureaux entrusted with the work concerned with (1) nomenclature, and (2) bibliography and documentation will act in conjunction with the executive committee.

4. Any language may be used in the discussions; if desired by the members, propositions shall be translated forthwith into English, French and German. English shall be the official language of the congress.

Particulars of meetings, discussions, excursions, etc., will be issued later.

American botanists are reminded that it is not too early to begin making arrangements for this congress. Communications may be addressed to the general secretary, Dr. A. B. Rendle, keeper of the department of botany, British Museum, Cromwell Road, London, England.

A NEW KIND OF BOTANICAL TEXT-BOOK

It is not often that the reviewer of books finds one of a new type, and especially is this true in regard to elementary text-books in science; yet in John G. Coulter's "Plant Life and Plant Uses" (Am. Book Co.) we find just such a case. It is so unlike the usual book designed for beginners in botany that the author allows the use of the word text-book only with particular limitations and restrictions. Avowedly intended as "a foundation for the study of agriculture" and "domestic science" the author has not al-

lowed this purpose to change materially the presentation of "the large essentials of plant life." "The effort is to include what has proper place in the education of *all* young people," and he distinctly excludes those special matters which are best relegated to agriculture, horticulture, domestic science, forestry, etc. In other words, we have here what the author believes all young people should know about plants as a general foundation for the subjects named, or even as a preparation for college botany. The present reviewer is in hearty accord with this educational theory, and he believes that in all well-considered schemes of education pure science must precede applied science.

The book is written in an easy, almost conversational style, and one wonders just how it is likely to be used by the ordinary teacher. It can scarcely be "recited" by the pupil, and possibly this may be a point in its favor. Perhaps this is why the author has added questions after the chapters, usually a feature of doubtful value, from the temptation it offers to the illy-prepared teacher to hold the book and ask the questions noted down before him.

Looking through the book, one is struck by a freshness of statement, showing that the author feels that he has a message for the high-school pupils of the country, and this continues with unabated enthusiasm from the first paragraph of the introduction to the closing paragraph of the book. It should do much to place high-school botany in this country upon a higher plane than it has ordinarily attained.

A NICE LITTLE DIATOM BOOK

One of the most attractive little books that we have seen in many a day is one entitled "Bacillariales" by H. v. Schönfeldt, and published by Gustav Fischer, of Jena. It is volume 10 of the series of booklets now in course of publication entitled "Die Süßwasserflora Deutschlands, Österreichs und der Schweiz" and edited by Professor Doctor Pascher, of Prag. There are to be sixteen of these booklets, bound in limp cloth, each meas-

uring about 11×19 cm. The book before us gives ten pages to structure, cell-contents, movements, reproduction, collecting, mounting and the literature of the group. Then follow 163 pages of systematic descriptions, the general treatment following that by Schütt in Engler and Prantl's "Natürlichen Pflanzenfamilien." Fourteen pages are given to the round diatoms (Centricæ), including eight genera and thirty-five species, while about 150 pages are given to the long diatoms (Pennatæ) in which are included about 40 genera and 390 species. These figures emphasize the statement often made that the round diatoms are mostly marine, and the long diatoms mostly inhabitants of fresh waters. Probably the truth is that in fresh waters we find many more long diatoms, because there are many more of them in the world at large, but this does not wholly account for the great disparity in numbers.

There are 379 cuts in the text, which must help the student greatly in his attempts to understand the structure and especially the markings of the cell-walls. A well-arranged index of scientific names closes this handy little book. One can not lay down this book without the wish that some day we may have something like it for this country.

CHARLES E. BESSEY

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SPECIAL ARTICLES

SUSCEPTIBILITY GRADIENTS IN ANIMALS

THE writer has called attention in several papers¹ to the existence of axial gradients in rate of metabolism in planarians and other forms and their significance in relation to polarity. During the past summer in the course of other work at Woods Hole the opportunity presented itself to examine various forms belonging to different groups and various embryonic and larval stages for the existence of such gradients.

The method used was that of determining the relative susceptibility of different regions

¹ *Jour. Exp. Zool.*, XII., 1912; *Arch. f. Entwicklungsmech.*, XXXV., 1913; XXXVII., 1913.